

REMARKS

This response is intended to reply to the Office Action dated September 6, 2006. In view of the following amendments and discussion, the Applicants believe that all claims are in allowable form.

AMENDMENT TO THE CLAIMS

Claims 3, 7-8 and 10 have been amended to correct claim language inconsistency. No new matter has been entered.

OBJECTION

The specification is objected as failing to provide proper antecedent basis for the claimed subject matter of claims 7-8 and 55. In response, the Applicants have amended claims 7-8 to clearly recite certain aspects of the invention. Accordingly, the Applicants respectfully request objection withdrawn and claims allowed.

CLAIM REJECTION

35 U.S.C. §112 Claim 9

Claim 9 stands rejected under 35 U.S.C. § 112, first paragraph. The Applicants submit the claim 9 has been amended as suggested by the Examiner in the previously submitted response dated June 21, 2006. Accordingly, the Applicants respectfully request objection withdrawn and claims allowed.

35 U.S.C. §112 Claims 11 and 27-63

Claims 11 and 27-63 stand rejected under 35 U.S.C. § 112, second paragraph. The Applicants submit the claims 11 and 27-63 have been amended as suggested by the Examiner in the previously submitted response dated June 21, 2006. Accordingly, the Applicants respectfully request rejection withdrawn and claims allowed.

35 U.S.C. §102 Claims 1-2, 12 and 23-24

Claims 1-2, 12 and 23-24 stand rejected under 35 U.S.C. § 102(e) as being anticipated by United States Patent No. 6,989,333 issued January 24, 2006, to *Watanabe, et al.*, (hereinafter referred to as *Watanabe*). The Applicants respectfully disagree.

Independent claim 1 recites elements not taught or suggested by *Watanabe*. *Watanabe* teaches disposing a photoresist layer on a substrate to define patterned features on the substrate. The photoresist layer is exposed to a first energy beam. The first exposed photoresist layer is then developed to form desired patterned features. Subsequently, the patterned photoresist layer is subject to a second energy beam and etched and/or trimmed to a desired width to facilitate the following etching process for etching features having the desired width in an underlying layer. In short, it is the photoresist layer of *Watanabe* being etched or trimmed. *Watanabe* does not teach or suggest lateral etching a hard mask layer.

The Applicants submit that photoresist layers and hard mask layers possess different and specific film component and properties. Photoresist layers are typically organic layers while hard mask layers are inorganic layers. Photoresist layers and hard mask layers individually perform different functions, and have different process windows and patterning processes. One of ordinary skill in the art would not confuse and misuse these two terms, "photoresist layer" and "hard mask layer", because these two terms individually represent two different process layers. As such, *Watanabe* does not teach or suggest a process to trim a hard mask layer. Therefore, *Watanabe* does not teach or suggest forming a first hard mask having at least one elongated structure on the layer, laterally etching at least one elongated structure of the first hard mask prior to etching the layer, etching the layer through the first hard mask to form an elongated layer feature, and removing the first hard mask, as recited by claim 1.

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim." *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984)(citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220

USPQ 193 (Fed. Cir. 1983). Here, *Watanabe* fails to disclose each and every element of the claimed invention recited by independent claim 1.

Thus, the Applicants submit that independent claim 1 and all claims depending therefrom, are patentable over *Watanabe*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

35 U.S.C. §103 Claims 13-22

Claims 13-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Watanabe* in view of United States Patent No. 6,366,730 issued April 2, 2002, to *Cappuzzo, et al.*, (hereinafter referred to as *Cappuzzo*). The Applicants respectfully disagree.

Independent claim 1 recites elements not taught or suggested by the combination of *Watanabe* and *Cappuzzo*. The teachings of *Watanabe* have been discussed above. *Cappuzzo* teaches using a heater strip as an etch mask to define at least part of upper cladding structures. However, *Cappuzzo* fails to teach or suggest a modification to *Watanabe* that would yield forming a first hard mask having at least one elongated structure on the layer, laterally etching at least one elongated structure of the first hard mask prior to etching the layer, etching the layer through the first hard mask to form an elongated layer feature, and removing the first hard mask, as recited by claim 1. As such, a *prima facie* case of obviousness has not been established as the references fail to teach or suggest all the elements.

Thus, the Applicants submit that independent claim 1 and claims 13-22 depending therefrom, are patentable over the combination of *Watanabe* and *Cappuzzo*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

ALLOWED CLAIMS

The Applicants thank the Examiner for indicating the allowability of claims 27-63. Additionally, the Applicants also thank the Examiner for indicating the allowability of claims 3-6, 10 and 25-26 if rewritten in independent form. However, in light of the reasons and discussion above, the Applicants believe all claims are allowable over the

prior art of record. Thus, the Applicants respectfully request all independent claims and claims depending therefrom allowed.


CONCLUSION

Thus, the Applicants submit that all claims now pending are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issuance are earnestly solicited.

If, however, the Examiner believes that any unresolved issues still exist, it is requested that the Examiner telephone Mr. Keith Taboada at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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